

Application No.: 10/658236
Docket No.: UC0013USNA

Page 6

Remarks

The following remarks are responsive to the final Office Action dated June 15, 2006 in the above referenced pending application. Applicant respectfully requests reconsideration in view of the remarks presented below and withdrawal of the objections and rejections. Should the objections and rejections not be withdrawn, in whole or in part, Applicants respectfully request that an advisory opinion on their maintenance be issued.

Status of the Specification

The amendment to the specification (page 3, lines 7-8, page 11, lines 1-2) filed on April 3, 2006 adding the phrase, with reference to λ , "and can be further expressed as $\Delta\phi(\lambda/2\pi)$ " is objected to as introducing new matter.

Amendments to the Specification

The specification is being amended to correct equations 1 and 2 as required by the Examiner, as well as equation 5 since the same informality would also be present with respect to this equation. Applicants express their gratitude to the Examiner for providing this helpful guidance. These amendments are made to track the amendments to claims 3 and 9 that correct the same informalities in the presentation of the equations (see below). Equations 1 and 2 are being corrected on pages 2 and 11, while equation 5 is corrected on page 10 of the application.

Applicants respectfully request that the amendments to the specification be entered.

Status of the Claims

Claims 1, 3, 5, 6, 9-13 and 19 are pending.

Claims 3 and 9 are objected to for informalities in the presentation of equations 1 and 2.

Claims 3 and 9 stand rejected under 35 U.S.C. §112.

Claims 1, 5, 6, 10 and 19 stand rejected under 35 U.S.C. §102.

Claims 3, 9 and 11-13 stand rejected under 35 U.S.C. §103.

Amendments to the Claims

Claims 3 and 9 are being amended to correct the informalities to the equations required by the Examiner and to add grammatical clarity by deleting the word "further" in the phrasing that has been objected to as new matter.

Applicant respectfully requests that the claim amendments be entered.

Objection to the Specification

The Examiner has objected to the amendment to the specification adding the recited phrase where indicated on the grounds that this phrase improperly introduces new matter into the specification. Applicants respectfully traverse this objection. The controlling statute, 35 U.S.C. § 132, prohibits introduction of new matter into the specification after the filing date of the application, but does not prohibit any amendment that changes, or adds to, the content of the specification after filing. An applicant may, for example, conform the disclosure section of the specification to the original claims and drawings without breaking the rule against

Application No.: 10/658236
Docket No.: UC0013USNA

Page 7

introducing new matter into the specification. Similarly, the disclosure may be amended to add matter that is inherently disclosed by the original application and directly or indirectly supported by it. Applicants respectfully submit that the mathematical expression $\lambda = \Delta\phi(\lambda/2\pi)$ expresses inherent physical properties of refracted light as would be interpreted by one possessing ordinary skill in the art and as such, does not improperly introduce new matter.

The expression is derived from the extract out of *Handbook of Optics* that Applicants appended to their April 3, 2006 amendment. The equation added by way of amendment was derived directly from equation (18) of the *Handbook*, namely, $\Delta\phi = (2/\lambda)OPD$ where OPD is the optical path difference (the phase difference as related to the difference in optical path lengths between the source (emitted light) and the observation point (incident light) for two waves). This is easily rearranged to $OPD = \lambda = \Delta\phi(\lambda/2\pi)$. The phenomenon is depicted schematically in FIG. 1 and discussed in detail in the application specification at page 9 line 19 to page 10, line 19. In equations 1, 2 and 5, the variables are the same as those in the equation derived above: ϕ is the total phase change of the radiation reflected by an ideal reflector (page 11, lines 1-2) and λ is the specific wavelength of light reflected (page 11, line 4). The variable η represents the refractive index of the material at a specific wavelength of light (page 10, line 35). Based upon these disclosures and assuming ordinary skill and knowledge in the art, a practitioner of the art would understand that $OPD = \Delta\phi(\lambda/2\pi)$. Therefore, this expression is inherent in the physical properties of light as one having ordinary skill in the art would interpret and understand those properties.

In *In re Nathan*, 140 USPQ 601 (CCPA 1964) the original claims were drawn to 2-halo (fluorine or chlorine) steroids. As the result of an amendment during prosecution, all of the claims specified the α -orientation for the 2-halo substituent. The Court stated the issue as follows (page 603, Col. 2): "[W]hether appellants' identification of 2-halo steroids in their original disclosure is adequate to identify the claimed subject matter and whether there is sufficient evidence in the record to show the alpha orientation to be an inherent characteristic of the subject matter so identified." In holding that the original disclosure adequately identified the amendatory subject matter, the court went on to state that "[s]uch amendment is not prohibited by the statute." (Page 604, Col. 1) The Court in *Nathan* cited *Ex parte Davisson*, 133 USPQ 400, 402 (Pat.Off.Bd.App. 1958) wherein the Examiner permitted and entered an amendment reciting the optical rotation data and elemental analysis of the sulfate of a claimed substance as well as the spectroscopic characteristics of the claimed substance, "apparently regarding them as a statement of inherent properties of the material adequately disclosed" in an original disclosure.

Applicants submit that this case presents analogous facts and circumstances. Accordingly, Applicants respectfully request that this objection be withdrawn.

Application No.: 10/658236
Docket No.: UC0013USNA

Page 8

Claim Objections – Claims 3 and 9

Claims 3 and 9 have been amended to correct the informalities in equations 1 and 2 as required by the Examiner. Applicants submit that these objections have been overcome by the foregoing amendments.

Claim Rejections - 35 U.S.C. § 112, second paragraph: Claims 3 and 9

Claims 3 and 9 are rejected under 35 U.S.C. § 112, second paragraph, for failing to comply with the written description requirement. As discussed above, the description of the total phase change, ϕ , has been amended in the specification at the places cited above as well as Claims 3 and 9 to clarify the description of the relationship between the optical path difference and the specific wavelength, λ , at which it is observed. This relationship is based on standard wave equations and can be found, for example, in the reference extract cited above, and previously submitted by Applicants.

Applicants rely upon their presentation, above, that the amendatory material is inherent and therefore does not constitute new matter. Should the objection to the specification be overcome, as Applicants believe it has, then there is adequate support in the disclosure for the claim amendments previously presented. Should the specification amendments be entered on grounds of their inherency, then the limitations in the amendments to the claims have specific support in the disclosure portion of the specification.

Applicants respectfully request that the Examiner withdraw the above referenced rejection based upon the foregoing clarifying amendments and the explanations therefor presented above.

Claim Rejections - 35 U.S.C. § 102(b): Claims 1, 5, 6, 10 and 19

Claims 1, 5, 6, 10 and 19 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,232,714 ("*Shen*"). Applicants respectfully traverse this rejection. Regarding independent Claims 1 and 5, *Shen* discloses optical cavities in a stacked organic light emitting device (SOLED), where the optical cavities can shift, or attenuate, the wavelength of the emitted light to modify, or filter, the color of emitted light, and to improve the external quantum efficiency of the SOLED. The problem that *Shen* addresses is that presented by interference effects of the electrodes (Col. 8, lines 53-66). In other words, SOLED structure can adversely affect light emitted from an OLED within the SOLED structure, and cause λ (wavelength) shifts or spectral changes that compromise the value and intensity of the emitted light. FIG. 6 shows three different plots (600, 601 and 602) of three identical OLEDs placed differently in a SMOLED structure. If fabricated and tested as discrete devices, the three OLEDs would have identical spectra. Plot 600 is broader than the spectrum that would be expected from an equivalent, discrete device; plots 601 and 602 are substantially red shifted. (Please see FIG. 6 of *Shen* and Col. 11, line 61 to Col. 12, line 8). FIGs. 8 and 9 depict, respectively, a preferred cavity embodiment and transmission functions related to highly specific optical cavity characteristics.

Application No.: 10/658236
Docket No.: UC0013USNA

Page 9

Table 1 of *Shen* describes the materials, thicknesses and optical parameters (index of refraction and path length) used to model the filtering effects of a SOLED. There is no information in Table 1 of *Shen*, or the accompanying description of Table 1, that describes $L_{\text{background}}$, the reflected ambient light from the device (see the pending application at page 8, lines 29-30), or how to achieve low $L_{\text{background}}$. The change in color saturation and external quantum efficiency taught by *Shen* are separate optical phenomenon from the ambient contrast ratio improvement of pending independent Claims 1 and 5.

Claim 1 recites as a limitation an organic active layer configured to achieve low $L_{\text{background}}$. Claim 5 recites that the first electrode layer is configured to achieve low $L_{\text{background}}$. Claim 6 requires the second electrode to be configured to achieve low $L_{\text{background}}$. Claim 10 calls for interfacial reflectivity no greater than about 30%. Low $L_{\text{background}}$ is defined in the specification on page 6, line 37 to page 7, line 2, and interfacial reflectivity is defined on page 6, lines 32-36. Equations 1, 2 and 5 relate to configurations to achieve low $L_{\text{background}}$ while Equation 3 relates to interfacial reflectivity. Claims 6 and 10 depend from Claim 5 and therefore include the elements of that independent claim; Claim 19 depends from Claim 1 or Claim 5. None of these claim elements are disclosed or suggested by *Shen*.

In short, *Shen* and the present application take entirely different routes to achieve color and intensity conservation and provide enhanced contrast. *Shen* achieves this by RGB (red-blue-green) light saturation using optical cavities in a multicolored SOLED while the Applicants configure one or more layers to reduce ambient back lighting. The present claims contain an essential limitation, i.e., configuration [of one or more layers] for achieving low $L_{\text{background}}$, that is neither disclosed nor suggested in *Shen*. Accordingly, this reference does not anticipate the claims under review.

Since *Shen* fails to teach or suggest all of the elements of independent Claims 1 and 5, *Shen* does not teach or suggest every element of dependent Claims 6, 10 and 19. Applicants earnestly request that this rejection be withdrawn.

Claim Rejections – 35 U.S.C. § 103(a): Claims 3 and 9

Claims 3 and 9 are rejected under 35 U.S.C. § 103(a) as unpatentable over *Shen* in view of Applicants' cited prior art. The differences between *Shen* and the present case have been enumerated above and will not be rescripted here, though the foregoing Remarks are relied upon here and are incorporated by reference in this section. *Shen* uses optical cavities, refractive data for the second electrode and reflective cap to design the properties of the optical cavities and tune emissive light at peak emissions of 500 nm for B, 530 nm for G, and 670 nm for R (Col. 13, lines 46-52). The present claims are not directed to tuning emissive wavelengths in this fashion, but to configuring one or more layers (e.g., with a black lattice, page 6, lines 1-2) to reduce ambient background light. Accordingly, there would have been no motivation to combine Applicants' cited references with *Shen* and there would have been

Application No.: 10/658236
Docket No.: UC0013USNA

Page 10

no reasonable expectation of success, in reducing ambient background light, in doing so. For these reasons, Applicants respectfully request that this rejection be withdrawn.

Claim Rejections - 35 U.S.C. § 103(a): Claims 11-13

Claims 11-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Shen* in view of U.S. Patent No. 6,307,528 ("*Yap*"). For the reasons stated above, Applicants respectfully assert that *Shen* does not teach the organic electronic device as claimed in pending Claims 11-13. In particular, Claims 11-13 ultimately depend from independent Claim 5, which recites an organic electronic device comprising an organic active layer and a first electrode having a side opposite the organic active layer, wherein the first electrode comprises a first electrode layer laying at the side opposite the organic active layer and the first electrode is configured to achieve low $L_{\text{background}}$. *Yap* does not make up the deficiencies of *Shen* in that it does not teach or suggest the elements missing from *Shen* and does not teach or suggest an organic electronic device comprising an organic active layer and a first electrode having a side opposite the organic active layer, wherein the first electrode comprises a first electrode layer laying at the side opposite the organic active layer and the first electrode is configured to achieve low $L_{\text{background}}$.

Applicants respectfully traverse the Examiner's assertion that *Yap* discloses an electrode layer comprising a metal selected from a transition metal and an elemental metal or an oxide of said metal in order to lower reflectance. *Yap* discloses an electrode layer (an anode and a cathode)(Col. 2, lines 23-24). Suitable cathode compositions include a thin layer of Mg/Ag with a thicker layer of ITO atop that. ITO is a suitable anode composition. *Yap* applies a low-reflectance material comprising a film to the substrate (the substrate may be transparent, non-transparent or even reflective). The electrodes (anode and cathode) are preferably transparent. Please see *Yap* at Col. 4, lines 23-34; Col. 4, lines 48-57; and Col. 4, lines 47-48. The low-reflectance coating may be made from alternating layers of chrome and chrome oxide or silicon and silicon oxide (Col. 4, lines 26-28). *Yap* accordingly teaches away from present Claims 11-13 in teaching that the electrodes are made from materials other than a transition metal or an elemental metal or an oxide thereof. Contrary to the Examiner's assertion, *Yap* teaches that the electrodes are preferably transparent. (Col. 4, lines 47-49). *Shen* teaches a thick, high work function metal layer 17" (*sic.*) such as Au or Ag on the Mg/Ag layer and that the thick metal is opaque. (Col. 1, lines 47-51). The Mg/Ag and Au or Ag layers in *Shen* comprise electrode 17. Since *Shen* uses a thick metal layer of high work function as a component of an electrode, there would be no motivation to combine *Shen* with *Yap* (low-reflectance film coating). Further, *Yap* teaches that the Ag/Mg layer of the electrode is made thin enough (typically 50-150 Å) so that it appears semi-transparent. Present claims 11-13 do not claim either a thick metal layer of high work function deposited atop a metal alloy to form an electrode, or a low-reflectance film coating.

Application No.: 10/658236
Docket No.: UC0013USNA

Page 11

Consequently, neither *Shen* or *Yap*, when read alone or together, teach or suggest the subject matter of pending Claims 11-13. Thus, the above referenced rejection should be withdrawn.


Conclusion

In view of the above amendments and remarks, Applicants submit that the case is in condition for allowance. A Notice of Allowance is respectfully solicited.

Alternatively, Applicants request an advisory opinion stating the grounds on which the rejections are maintained.

Should the Examiner have questions about the contents of this paper or the status of the application, the Examiner is invited to call the undersigned at the telephone number listed below.

Respectfully submitted,


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